

State a value that makes the ordered pair a solution of the given equation.

1. $3x - 2y = 18$

$(-2/3, \underline{\hspace{2cm}})$

2. $x - 4y = -12$

$(\underline{\hspace{2cm}}, 1/2)$

Find the x- and y-intercepts for each equation.

3. $4x + 5y = 20$

x-intercept: $(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

y-intercept: $(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

4. $2x - y = 8$

x-intercept: $(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

y-intercept: $(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

Write an equation in slope-intercept form that meets the following conditions.

5. Has an x-intercept of 5 and
a y-intercept of 7

6. Has the same slope as $2x + 3y = 9$
and the same y-intercept as $3x - 4y = 12$

7. Is perpendicular to $y = \frac{1}{2}x + 5$
and contains $(-3, 1)$

8. Is parallel to $4x + 2y = 5$ and passes
thru $(3, -2)$

Write an equation in point-slope form for each of the following.

9. $m = 3$ $(4, -5)$

10. $(4, 7)$ and $(-2, -5)$

11. Write a linear model.

Whether you are climbing a mountain or flying an airplane, the higher you go, the colder the air gets. At 1000 ft, the temperature is 13°C . At 3000 ft, the temperature is 9°C .

- Write the ordered pairs.
- Find the slope.
- Find the y-intercept.
- Write the linear model.
- Find the temperature at 5000 ft.

12. If $f(x) = -3x + 1$ and $g(x) = x^2$, evaluate each of the following.

- $f(-6) = \underline{\hspace{2cm}}$
- $g(-4) = \underline{\hspace{2cm}}$
- $f(5) - g(3) = \underline{\hspace{2cm}}$

State the vertex and equation for the axis of symmetry.

13. $y = |x - 5| + 4$

Vertex:
Axis of Symmetry:

14. $f(x) = |2x - 6|$

Vertex:
Axis of Symmetry:

15. $y = \frac{1}{2} |x + 3| - 8$

Vertex:
Axis of Symmetry:

Write an absolute value function whose graph represents the following.

16. a translation 3 units to the left
and 4 units down from the parent
graph of $y = |x|$

17. is wider than the parent graph and
2 units up from the parent graph of
 $y = |x|$

Advanced Algebra Review
Assignment # _____

Name _____

Solve each inequality.

1. $-10 < 3x + 2 \leq 14$

2. $-5 \leq 1 - \frac{1}{2}x < 11$

(Draw a graph to determine each solution. Write the simplest solution.)

3. $2k > 10$ and $k - 8 < 30$

4. $\frac{3}{4}x - 2 > 10$ or $3x > 0$

5. $5x < -20$ and $\frac{1}{2}x < 3$

6. $2 - 3a < 8$ or $x < 10$

Solve the absolute value equations. (Remember: TWO equations are needed. See pp. 33-34 examples 1-3)

7. $|2x - 3| = 17$

8. $|3x - 1| + 10 = 25$

9. $-2|x + 1| = 10$

10. $3|4w - 1| - 5 = 10$

Solve the absolute value inequalities. (Remember: Use a graph to determine the solution.)

11. $|5x| > 20$

12. $|x - 2| > -4$

13. $|y + 5| < 8$

14. $|3 - \frac{1}{2}x| < 9$

Solve.

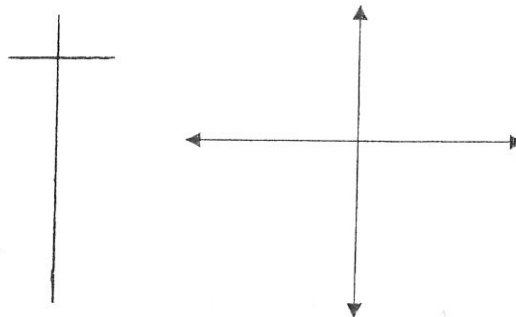
15. If the slope of a line is 5, then the slope of the line parallel to it is _____ and the slope of the line perpendicular to it is _____.

16. If the equation of a line is $2x - 5y = 10$, then the slope of the line parallel to the given line is _____ and the slope of a line perpendicular to the given line is _____.

17. The general form of an absolute value function is _____.
The general form of the vertex of an absolute value function is _____.
The equation of the axis of symmetry for an absolute value function is _____.

18. The vertex of $y = |3x + 6| - 8$
is _____.
The equation for the axis of symmetry is _____.

19. Make a T-chart and graph:
 $y = |x - 4| + 2$



1. State the domain and range of the relation.

$$\{(5, 4), (3, -2), (5, -2)\}$$

Domain: _____ Range: _____

2. Is the relation in problem 1 a function? Explain why or why not.

3. The equation of a line is $4x + 3y = 15$.

a) The ordered pair of the x-intercept of the line is _____

b) The slope of a line parallel to the above line is _____

c) The slope of a line perpendicular to the above line is _____

4. Write the equation a line in slope-intercept form that has a slope of $2/3$ and contains $(-4, 7)$.

5. Write the equation of a line in slope-intercept form that contains $(-2, 5)$ and $(-3, 8)$.

6. Write an equation of a line that has no slope and contains $(5, 3)$.

7. Morgan can type 174 words in 3 minutes. After 6 minutes, she had typed 348 words. Write a linear model to represent the number of words, y , that Morgan can type in x minutes.

8. Use the linear model from problem 7 to predict the number of words that Morgan can type in 8 minutes.

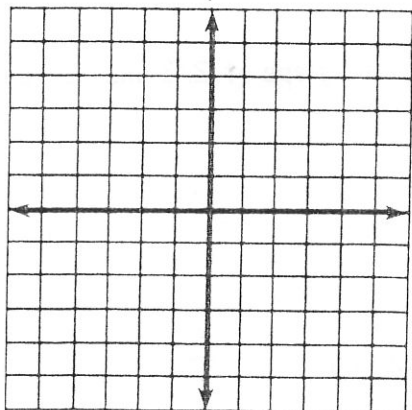
9. Write an equation for an absolute value function that

a) opens downward and has a vertex of $(7, -2)$ _____

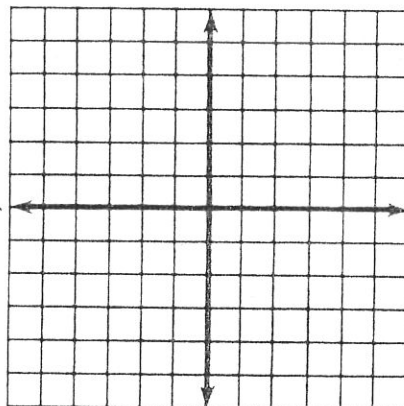
b) translates 5 units to the right and 4 units up from the parent function _____

10. Graph.

a) $y = |x - 2| + 1$



b) $y < |x| - 2$



Solve.

11. Find three consecutive even integers where ten less than the first integer is the same as the sum of the second and third integers.

12. If two angles are complementary, then the complement is nine degrees more than twice the original angle.

Advanced Algebra
Quarter Review

Name _____
Hour _____

1. The General Standard Form for a linear equation is _____
2. The slope formula is _____
3. Use the following words to complete each sentence: positive, negative, zero, no slope,
x-intercept, y-intercept *undefined*
 - a. The _____ is the point where a line intersects the x-axis.
 - b. The _____ has the coordinate (0,y).
 - c. If a line is horizontal, then the slope is _____
 - d. If a line rises to the right, then the slope is _____
 - e. If a line is vertical, then the slope is _____
 - f. If a line rises to the left, then the slope is _____

Write an equation of a line in slope-intercept form that meets the following conditions.

4. That has the same slope as $3x - 4y = 12$ and the same y-intercept as $2x - 4y = 20$.
5. That has an x-intercept of 4 and a y-intercept of 6.
6. That contains the points (4, 1) and (4, 9).
7. That has the slope of 5 and contains (-2, 1)
8. That passes through (6, -4) and is perpendicular to $2x - 3y = 3$.

Write an absolute value function whose graph represents the following.

9. a translation of 3 units down and 4 units to the right from $f(x) = |x|$

10. a translation of 2 units down and 5 units to the left from $f(x) = |x|$

Make a T-chart for each of the following.

11. $y = |x + 5| - 2$

12. $y = -3|x - 2| + 1$

13. $y = 5|x| + 3$

14a. A candle is 7 in. tall after burning 1 hour and 5 in. tall after burning 2 hours. Write a linear equation to model the height of the candle.

b. How tall will the candle be after 4 hours?

c. When will it burn out?

d. How tall was the candle originally?